

REMARKS

Claims 1-13 are pending and stand rejected. In view of the amendments made herein and the remarks that follow, Applicant respectfully submit that the claims are in condition for allowance and a notice to this effect is hereby requested.

Objection to the Title

The Examiner objects to the title of the application as allegedly not descriptive. Applicant respectfully disagrees with the grounds of this objection as the original title is deemed more than adequate.

Notwithstanding, and in order to expedite prosecution, Applicant has amended the title to recite "Lead Frame for Connecting Electronic Components of an Electric Motor".

Reconsideration and withdrawal of the objection are respectfully requested.

Drawing & Specification Objections

Responsive to the Examiner's objection, Replacement Sheet for Fig. 1 is attached hereto and identifies Fig. 1 as "Prior Art".

Responsive to the objection at paragraph 4 of the Office Action, a Replacement Sheet for Fig. 2 is attached hereto to point out the location of lead frames 112, 114 and 116. While the lead frames were discussed throughout the originally-filed application, for example at page 4, lines 19-21, they were not identified in Fig. 2. Accordingly, Fig. 2 has been amended to identify the lead frames in one an exemplary embodiment of the disclosure. Consistent with the drawings, the specification has been amended at page 4, lines 16-21 to address the lead frames shown in Fig. 2. No new matter has been added. Entry of the amendments and withdrawal of the objections are respectfully requested.

Finally, in response to the Examiner's objection to the specification for referencing specific claims, the specification has been amended to remove any such reference.

Applicant respectfully submits that the objections to the specification and the drawings have been overcome.

Claim Objection

The Examiner objects to claim 8 for failing to provide antecedent basis for claim 9. Claim 9 has been amended herein and Applicant respectfully submits that this objection is now overcome.

Claim Rejection under 35 U.S.C. § 112

Claims 1-13 stand rejected under 35 U.S.C. § 112, first paragraph, for allegedly failing to comply with the written description requirement. Specifically, the Office Action states that "The specification does not disclose, nor do the drawings do not [*sic*] show, how the tracks of the lead frame will be adapted for direct electrical contact of electrical components or to position and support the electrical components." Office Action, paragraph 9. The Examiner also speculates that the lead frames "will not function in a motor without a means to maintain the direct electrical contact, due to inherent vibrations of the motor during operation." *Id.*

Applicant respectfully disagrees with grounds of this rejection.

As the Examiner is well aware, the test of enablement is whether one of ordinary skill in the art could make or use the invention based on the disclosure without undue experimentation. See *MPEP* § 2164.01. Importantly, "a patent need not teach, and

preferably omits, what is well known in the art.” *Id.* citing *In re Buchner*, 929 F.2d 660, 661, 18 USPQ 2d 1331, 1332 (Fed. Cir. 1991).

Here, one of ordinary skill in the art having studied the specification would be able to readily assemble the motor in various configuration without limiting the operation of the motor as may be caused by vibration. For example, the specification discloses at page 5, lines 11-12 that in one embodiment “the phase windings are connected to the lead frame by soldering or welding.” In another embodiment, the tracks are stamped and bent to provide connection. See page 5, lines 14-15. Either one of these configurations would provide an operable device consistent with the specification without undue experimentation. Applicant respectfully submits that other methods can be used without departing from the principles disclosed by Applicant.

For these reasons, reconsideration and withdrawal of § 112, first paragraph, are respectfully requested.

Anticipation Rejection over Suzuki

Claims 1-4, 7-9 and 12-13 stand rejected as allegedly anticipated by U.S. Patent No. 5,119,466 to Suzuki. The claims, as amended, are patentable over Suzuki.

Independent claim 1 has been cancelled. In pertinent portions, independent claim 12 recites: “the lead frame is of a *rotationally symmetrical shape*, and the electronic components on the lead frame (8) are arranged in a rotationally symmetrical manner”. Support for this amendment is found throughout the specification, for example, at page 5, lines 3-7 and claim 5 as originally filed. (Emphasis added.) Rotational symmetry of the lead frame and the components make it possible to minimize the length of the connections.

Suzuki neither discloses nor suggest a lead frame with a rotationally symmetric shape. For at least this reason the reference is not anticipatory of claim 12 or any claim depending therefrom.

Reconsideration and withdrawal of the rejection over Suzuki are respectfully requested.

Anticipation Rejection over Weigold

Claims 1-10, 12 and 13 stand rejected as allegedly anticipated by Published Application No. 2004/0027014 to Weigold et al. ("Weigold"). The claims, as amended, are patentable over Weigold.

Weigold is directed to electronically commuted direct current motor. In particular, the reference shows an electric motor comprising a lead frame without rotational symmetry. This is readily apparent from Figs. 5-7 where the lead frame is formed from several layers. The layer shown in Fig. 5 carries electronic components which is identified as element 22 in Fig. 7. While there may be axial symmetry of the components, they are not arranged in a rotationally symmetrical manner. With respect to the lead frame, there simply is no rotational symmetry.

Moreover, Weigold alleges that all power current is conducted by the lead frame and that the associated PCB need only be used for low power signals and control current. Weigold fails to consider the problem contemplated by Applicant, that is, reducing losses due to solder connections and long wires. While Weigold's semiconductor switches are connected to phase windings via the lead frame, the length of the connections are not addressed. Accordingly, Weigold neither anticipates nor render obvious a lead frame design which is rotationally symmetrical, let alone arranging electronic components on the lead frame in a rotationally symmetrical manner to minimize the length of the

conducting path and to provide connections of equal path. As apparent from Figs. 5-7, connection paths of Weigold are neither minimal nor of the same length.

Reconsideration and withdrawal of the rejection over Weigold are respectfully requested.

Obviousness Rejection

Claim 11 stands rejected as allegedly unpatentable over a combination of various art of record. Claim 11 depends from independent 12, which as explained, is patentable over the art of record. Accordingly, claim 11 is deemed patentable by the virtue of this dependence and additional reasons for patentability of claim 11 will not be proffered.

Reconsideration and withdrawal of the obviousness rejection are respectfully requested.

CONCLUSION

Having addressed each and every issued raised in the pending Office Action, Applicant submits that the claims are in condition for allowance. A notice to this effect is respectfully requested.

While an extension of time is not deemed necessary, the Office is requested and hereby authorized to charge the appropriate extension-of-time fees needed to maintain the application pending against Deposit Account No. 04-1679 to Duane Morris LLP.

The Examiner is invited to contact the undersigned to discuss any issues pertaining to the instant application.

Respectfully submitted,



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